01/30/14 Agenda:

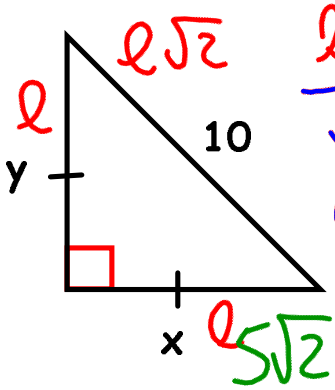
- Review Worksheet 4 - Special Right Triangles

- Review Sections 7.1, 7.2, & 7.4

- Tomorrow (Friday)
    - Quiz on 7.1, 7.2, & 7.4

Warm Up - Homework Out!

Find the missing sides:



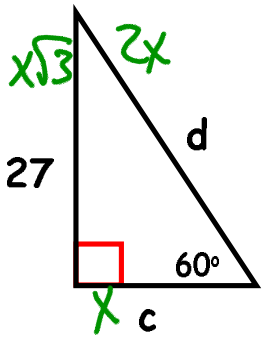
$\ell\sqrt{2}$ $\ell\sqrt{2}$

$\frac{2\sqrt{2}}{\sqrt{2}} = \frac{10}{\sqrt{2}}$

$\ell = \frac{10}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$

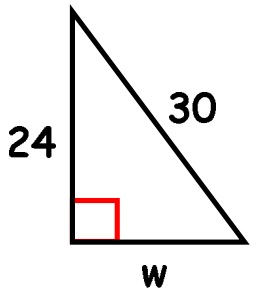
$\frac{10\sqrt{2}}{2}$

$\ell = 5\sqrt{2}$



$c = 9\sqrt{3}$

$d = 18\sqrt{3}$

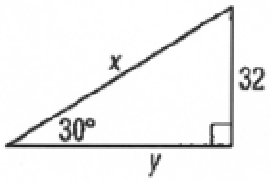


$w = 18$

3, 4, 5

5, 12, 13

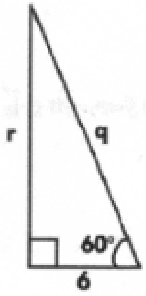
9.



x = 64

y = $32\sqrt{3}$

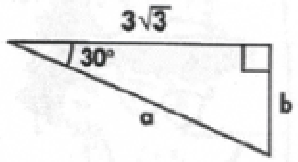
10.



r = $6\sqrt{3}$

q = 12

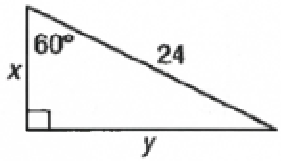
11.



a = 6

b = 3

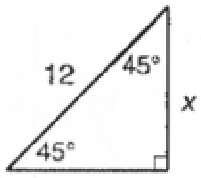
12.



x = 12

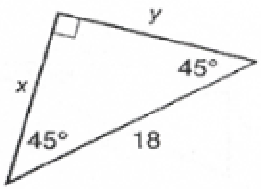
y = $12\sqrt{3}$

13.



x = $6\sqrt{2}$

14.

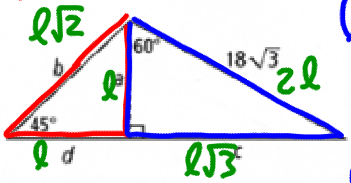


x = $9\sqrt{2}$

y = $9\sqrt{2}$

15.

$b = 9\sqrt{3} \cdot \sqrt{2} = 9\sqrt{6}$



$\ell = 9\sqrt{3}$

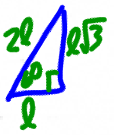
$a = 9\sqrt{3}$

$d = 9\sqrt{3}$

a = $9\sqrt{3}$

c = 27

d = $9\sqrt{3}$



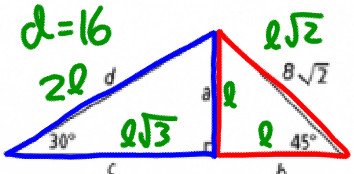
$c = 9\sqrt{3} \cdot \sqrt{3}$

$= 27$

b = $9\sqrt{6}$

16.

d = 16



$c = 8\sqrt{3}$

$a = 8$

$b = 8$

a = 8

b = 8

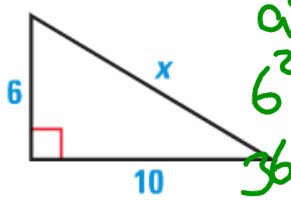
c = $8\sqrt{3}$

d = 16

- Quiz Tomorrow - Sections 7.1, 7.2, & 7.4

- Section 7.1
    - The Pythagorean Theorem
    - Pythagorean Triples
- Section 7.2
    - Converse of the Pythagorean Theorem
    - Pythagorean Inequalities (is Δ acute, right, or obtuse)
- Section 7.4
    - Special Right Triangles
        - 45-45-90 Triangles
        - 30-60-90 Triangles

Find the missing sides, round to the nearest ***tenth***.



$a^2+b^2=c^2$

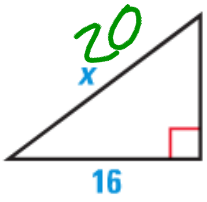
$6^2+10^2=c^2$

$36+100=c^2$

$136=c^2$

$\sqrt{136}=\sqrt{c^2}$

$11.7=c$



$12^2+16^2=x^2$

$144+256=x^2$

$400=x^2$

$\sqrt{400}=\sqrt{x^2}$

$20=x$

$x=15$

$x^2+12^2=\sqrt{369}^2$

$x^2+144=369$

$x^2=225$

Classify the triangle formed by the side lengths as ***acute***, ***right***, or ***obtuse***.

6, 8, 9

$36+64 \stackrel{?}{} 81$

$100>81$

ACUTE

15, 20, 15

$15, 15, 20$

$225+225>400$

ACUTE

13, 18, $3\sqrt{55}$

$169+324 \quad 495$

$493 < 495$

OBTUSE

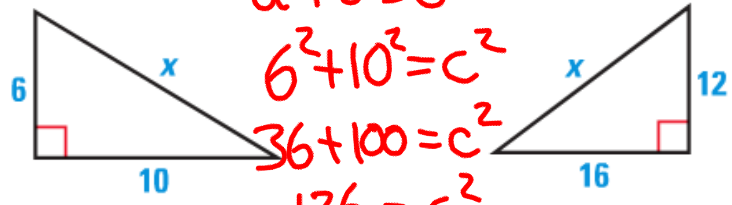
$(3\sqrt{55})^2$

$(3^2)\cdot(\sqrt{55})^2$

$9 \cdot 55$

Sections 7.1-7.2 - The Pythagorean Theorem.... Target 7A

Find the missing sides, round to the nearest ***tenth***:



$a^2+b^2=c^2$

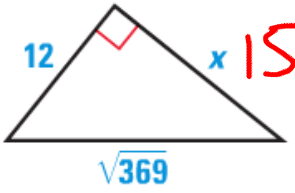
$6^2+10^2=c^2$

$36+100=c^2$

$136=c^2$

$\sqrt{136}=\sqrt{c^2}$

$11.7=c$



$12^2+x^2=\sqrt{369}^2$

$144+x^2=369$

$x^2=225$

Classify the triangle formed by the side lengths as ***acute***, ***right***, or ***obtuse***:

IF $a^2+b^2=c^2$ RIGHT Δ

IF $a^2+b^2>c^2$ ACUTE Δ

IF $a^2+b^2<c^2$ OBTUSE Δ

6, 8, 9

$36+64$ 81

$100>81$

ACUTE

15, 20, 15

15, 15, 20

$225+225>400$

ACUTE

13, 18, $3\sqrt{55}$

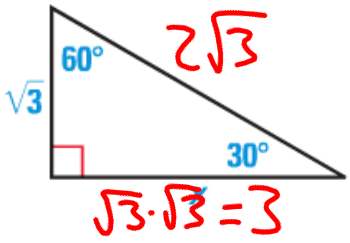
$169+324$ 495

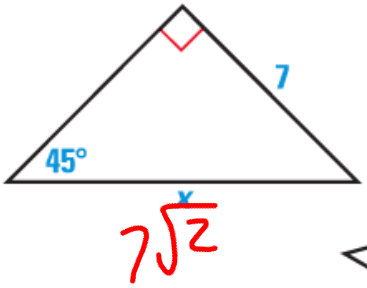
$493<495$

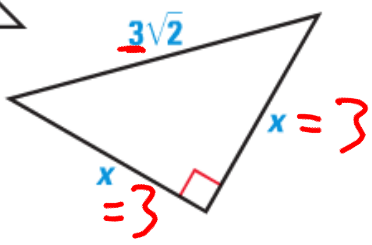
OBTUSE

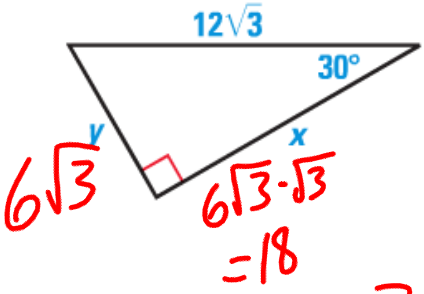
Sections 7.4 - Special Right Triangles Target 7B

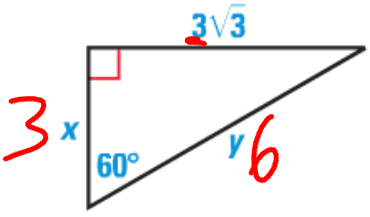
Find the missing sides. Write your answer in simplest radical form:

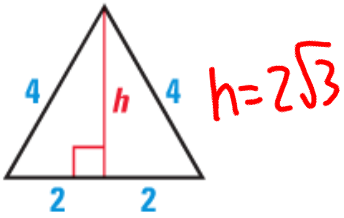












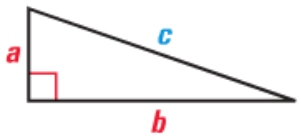
Theorem Page:

THEOREM — For Your Notebook

THEOREM 7.1 Pythagorean Theorem

In a right triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs.

Proof: p. 434; Ex. 32, p. 455

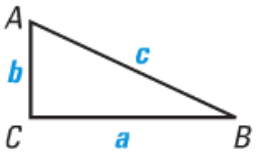


$c^2 = a^2 + b^2$

CONCEPT SUMMARY — For Your Notebook

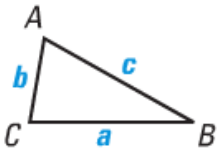
Methods for Classifying a Triangle by Angles Using its Side Lengths

Theorem 7.2



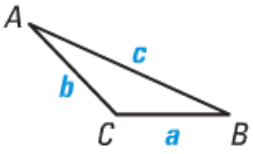
If $c^2 = a^2 + b^2$, then $m\angle C = 90°$ and $\triangle ABC$ is a right triangle.

Theorem 7.3



If $c^2 < a^2 + b^2$, then $m\angle C < 90°$ and $\triangle ABC$ is an acute triangle.

Theorem 7.4



If $c^2 > a^2 + b^2$, then $m\angle C > 90°$ and $\triangle ABC$ is an obtuse triangle.

Theorem Page:

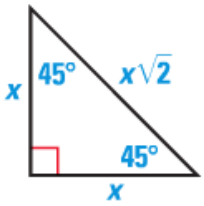
THEOREM *For Your Notebook*

THEOREM 7.8 45°-45°-90° Triangle Theorem

In a 45°-45°-90° triangle, the hypotenuse is $\sqrt{2}$ times as long as each leg.

hypotenuse = leg • $\sqrt{2}$

Proof: Ex. 30, p. 463



THEOREM *For Your Notebook*

THEOREM 7.9 30°-60°-90° Triangle Theorem

In a 30°-60°-90° triangle, the hypotenuse is twice as long as the shorter leg, and the longer leg is $\sqrt{3}$ times as long as the shorter leg.

hypotenuse = 2 • shorter leg

longer leg = shorter leg • $\sqrt{3}$

Proof: Ex. 32, p. 463